

Morphnus Woodward!

Morphnus woodwardi has been changed
to *Geranoaetus woodwardi* because:

A Resemblances to *G. melanoleucus*:

1. ⁴ Tarsus - shape - hyposaurus - tib. ant.
2. Tibia - distal end, condyles, intercondylar groove & supratendinal bridge.
3. Femur - ant. - trochanter, head.
4. ~~Stemur~~ -

B. Resemblance to *G. fragilis*
1. ⁴ Tarsus - as in A
2. Tibia - as in A
3. Femur - as in A
4. Humerus - straight & slender
5. Carpus? as in A
6. Coracoid - particular facet (near Buteo)
7. Scapula - shape of glenoid facet & gen. shape

C. Dissimilarities to *Geranoaetus melanoleucus*

1. Femur - heavier
2. Humerus - ~~too~~ straight - shape of capitulum crest
3. Carpus - longer
4. Coracoid - slightly different facet, large muscle tub.
7. Scapula - straighter glen. facet

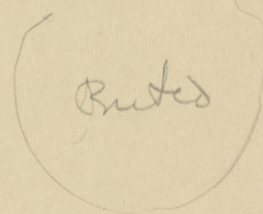
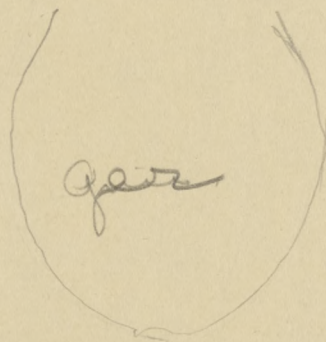
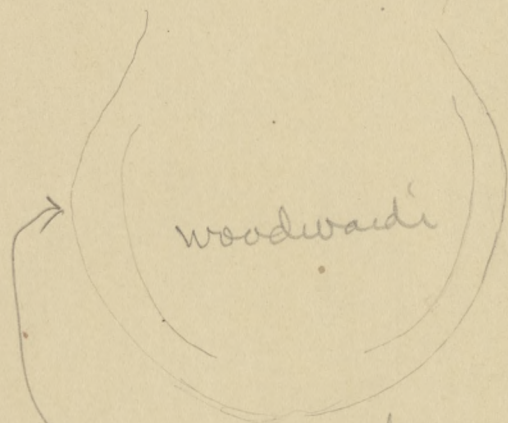
later decided to leave it in Morphnus
at least until more is known of the
genus in of *Geranoaetus* et al

Stack

M. woodwardi

Furcula

Material available. — One left clavicle with symphysis; two left, three right clavicles Characters; Rounded as in Buteo



the with greater curvature near coracoid facet Recurved ventrally as in Buteo & Ger. with furcula process prominent and extending to dorsal border of symphysis. Bone from coracoid process to tip broader ^{erect} than geranoetus; shape similar to ger. but blunter at tip.

? Anterior face of symphysis, round at ventral border as in Buteo & Ger.

$$\begin{array}{r} 73 \\ 792 \overline{) 5750} \\ \underline{5444} \\ 3060 \end{array}$$

$$\begin{array}{r} 85 \\ 54.3 \overline{) 46.40} \\ \underline{43.64} \\ 2760 \\ \underline{2715} \end{array}$$

$$\begin{array}{r} 78 \\ 59.2 \overline{) 46.20} \\ \underline{41.44} \\ 4740 \\ \underline{4736} \end{array}$$

$$\begin{array}{r} 8 \\ 376 \overline{) 3370} \\ \underline{3008} \\ 372 \end{array}$$

$$\begin{array}{r} 8 \\ 41.3 \overline{) 33.60} \\ \underline{32.04} \\ 1560 \end{array}$$

Morphnus woodwardi
Tarsus - metatarsus

Geranoaetus melanoleucus 233

Greatest length	Prox. end to mid. of tib. art.	prox. end breadth	dist. end breadth	dist. end depth mid tarsus
113.5 ✓	21.3 - 18.7%	20.5 - 18.0%	22.3 - 19.7%	8.6 - 7.5%
114.7 ✓	22.3 - 19.5%	20.7 - 18.0%	22.7 - 19.7%	8.8 - 7.6%

Morphnus woodwardi

D1072	139.1	22.2 - 19.5%	24.3 - 17.4%	27.3 - 19.6	10.1
D4625	125.0	21.4 - 18.7%	22.3 - 17.8%		9.6
D1968	128.8	22.4 - 17.6%	22.7 - 17.7%	25.0 - 19.5	9.4
D4836	126.3	23.2 - 18.3	22.7 - 17.6%	25.1 - 19.8%	9.5

Tarsus - metatarsus - in general similar
to *G. melanoleucus*. Differences as cited in Miller 1911.
Also posterior part less excavated and inner pre-
metatarsal foramen (prox. end.) usually double - one
well below calcaneal ridge.

S. bagleyi

D3528	113.3	17.3 - 15.2%	17.9 - 15.8%	19.7 - 17.3%	
D283	98.9	18.7 - 18.8%	17.1 - 17.2%	19.7 - 19.9%	✓
C5786	112.6	19.1 - 16.9%	18.2 - 16.1%	19.8 - 17.5%	
E1903	99.8	15.5 - 15.4%	15.6 - 15.6%	17.4 - 17.4%	
C3860	106.1	20.4 - 19.2	17.7 - 16.7%	19.3 - 18.1%	✓
D14	106.0	17.9 - 16.8%		20.1 - 18.9%	
D3001	100.9	16.5 - 16.3%	16.8 - 16.6%	20.0 - 19.8%	
C4442		20.4	17.8		✓
C9597	106.1	12.8 - 16.7%	17.8 - 16.7%	20.1 - 18.8%	

no. 970

D8390	93.0	23.1 - 24.8%	21.2 - 22.8%	24.1 - 25.9%	
C5576	84.0	19.8 - 23.5%	18.5 - 22.0%	21.4 - 25.4%	

	length	pin	dist	tub.	depth shaft	dist. to hole	tub. length	depth to dist	
J9870	140.7	25.7	27.6	25.2					140
D1072	138.8	24.4	27.1	26.3	11.7	-81.275	18.9	43.1	139
C9103	137.7	24.6	28.1	26.1	11.5		18.8		138
✓ D4679	136.7	24.5	27.9	23.9	12.2	20.4	17.4	43.7	137
D1975	135.5		28.5	26.7		89.9			136
✓ D3169	134.6	24.8	28.4	24.7	12.6	21.0	18.3	44.3	135
J9868	134.6	24.7	29.3	24.6	12.4	83.4	16.2	44.0	134
D3539	133.7	22.7	26.3	23.0			17.2		133
D6682	132.1	22.7	26.7	19.8	10.82	81.7	14.9	40.4	132
✓ D3168	131.9	21.7	25.6	20.0	10.6	19.4	15.1	41.4	131
D4828	131.7	23.3	26.4	21.6			16.4		130
D7004	130.6	21.4	24.5	22.4			17.1		129
D2417	130.1	22.6	25.2	21.6	11.1	85.3	16.6	44.0	128
C2375	129.7	23.0	26.0	21.3			16.4		127
D1071	129.6	22.5	25.6	21.9	10.6	81.7	16.8	41.4	126
D2351	129.5	25.2	29.1	22.8					125
✓ D4484	129.4	22.4	26.3	23.9	12.1	87.3	18.4	46.0	124
D3167	129.2	23.0	25.0	21.7	11.4		16.7		123
D4868	128.6	21.8	24.8	22.0					122
D1968	128.2	22.7	24.9	21.2	10.5		16.5		121
D158	127.4	22.5	25.5	22.9	11.6		17.9		120
✓ D1971	127.1	22.4	24.3	21.0	10.9	19.1	16.5	44.8	119
D4836	126.3	22.4	26.1	23.0					118

Scapula

Woodwardi

C 753	28.4 nt. max
C 4694*	25.4 nt —
C 4570	26.6 left
C 4254	25.4 nt — } small
D 4816*	25.4 left — } typical
D 4757	24.6 left = min.
C 9126	25.3 left
A 6363	25.3 left

$$\begin{array}{r} 8 \overline{) 2064} \\ 25.8 \end{array}$$

		max	dist.	ba	ca
D 2236	185.8 nt.	23.7	23.8	12.7	12.8
D 1068	171.4 nt	21.1	21.1	12.3	12.3
D 4765*	176.2 left —	21+?	22.8	12.3	12.9
D 1974	172.1 left		24.8		
D 1361	190.8 nt				12.9
D 4767	176.2? left — small slightly				
C 8330	171.6? left				

$$\begin{array}{r} 7 \overline{) 1244.1} \\ 177.7 \end{array} \quad D 3054 \text{ dist end}$$

$$\begin{array}{r} 190.8 \\ 171.4 \\ \hline 19.4 \end{array}$$

$$\begin{array}{ccccccc} & 3 & & 8 & & \checkmark & 3 \\ \hline 190.8 & 185.8 & 176.2 & 176.2 & 172.1 & 171.4 & 171.6 \end{array}$$

Carpus

woodwardi.

D 5704*	115.0 at
F 954	119.4 at
E 6435	123.2 left
E 9144	124.0 at
E 5187	128.4 left
E 4997	116.1 at
D 2238	104.4 left
D 1702*	116.1 at
D 6204	107.0 left ✓
D 4838	106.7 left ✓
C 4688	122.5 left

typical the broken see D 5704/n
other charo.

$$\begin{array}{r}
 11 \overline{) 12802} \quad (116,3 \\
 \underline{11} \\
 18 \\
 \underline{11} \\
 70 \\
 \underline{66} \\
 42
 \end{array}$$

$$\begin{array}{r}
 128.4 \\
 104.4 \\
 \hline
 24.0 \quad 3
 \end{array}$$

$$\begin{array}{cccccccccccccccc}
 128.4 & 127 & 126 & 125 & 124.0 & 123.2 & 122.5 & 121 & 120 & 119.4 & 118 & 117 & 116.1 & 115.0 \\
 \hline
 & & & & & & & & & & & & 116.1 &
 \end{array}$$

$$\begin{array}{cccccccc}
 114 & 113 & 112 & 110 & 109 & 108 & 107.0 & 106.7 & 105 & 104 \\
 \hline
 & & & & & & & & &
 \end{array}$$

Gen

E1111 130.7 at 21.7
 D2487 124.4 at 21.9
 C8833 124.2 left 21.7
 F4580 23.2
 C8874 23.1
 D2006 21.0

typical
 small

1307
 1246
 1242
 3 3795
 1265

1307
 1242
 65

Length prox dist Humerus
 C6743 201.7 31.2 at 34.2 — small
 D1954 193.1? 36.4 left
 D1358 17.5 39.7 at
 D1302 37.4 left
 D6711 40.8 left
 C5251 42.3 left
 C9376 38.3 left
 C4427 42.0 left
 C4344 37.0 left
 D1342 34.4 left
 D6799 31.0 at
 D1978 31.5 left
 C1348 34.7 left

typical
 201.7
 193.1
 8.6

201.7 as against 213 mean?

213.0
 201.7
 193.0
 3 6077
 202.5

at = mount

2 39488 314.1
 199.4 39.2 6 202.8
 32.1

217.5
 213.6
 203.0
 201.7
 201.5

217.5
 213.0
 193.1
 201.7
 4 825.3
 206.3

140.6

125.0

115.6

Taurus

25

woodwards

G 2862 132.0 nt

✓ 9870 140.6 nt

✓ 4625 125.0 left

✓ 7484 129.4 left

✓ 2417 130.2 nt

✓ 2375★ 129.8 left — small

✓ 1975 135.9 nt

✓ 4679 136.8 nt

✓ 4836 126.5 nt

✓ 1073 137.0 left

✓ 4828 131.8 left ✓

✓ 2351 129.4 left

✓ 3168 131.9 left ✓

✓ 1971 127.3 nt X smallest

✓ 3169 134.6 left

✓ 9868 134.7 nt

✓ 1968 128.3 left O smaller

✓ 3167 129.2 left

✓ 9103 137.7 nt

✓ 4868 128.7 nt O

✓ 1072 138.8 left

✓ 6682 132.0 left

✓ 1071★ 129.7 nt — typical

✓ 3529 133.7 left

✓ 158 127.7 left X

24) 31664 (131.5

24
76

1406/139/1388/137.7/136.8/135.9/134.6/133.7/132.0/131.9/130.2/129.8/128.7/127.4/126.5/125.0
 137.0/134.7/131.8/129.4/128.3/127.3/129.7/129.4/129.2

★ 2 mount

Total 95) 31664
 132.0
 32984 (131.9
 21
 79
 75
 48
 23
 234
 200

1285
104.4
24.1

(11) *Carpinetacarpus* *no plus*

E 5187	128.5'	
E 9744	123.9	- 4.6
E 6435'	122.8	- 1.1
E 4688	122.5'	- 0.3
F 954	119.6	- 2.9
D 1202	116.1	- 3.5
E 4997	116.0	- 0.1
D 5704	115.0	- 1.0
		- 8.3
D 6704	106.7	
D 4838	106.6	- 0.1
		- 2.2
D 2238	104.4	

coracoid¹

woodwardi

E 5976 * 68.7 rt ✓
 D 4676 71.6 left — typical
 C 7674 70.5 rt —
 D 2423 * 68.4 left ✓
 C 6875 67.9 left
 C 3299 73.2 left ————— max
 D 2441 67.9 left
 C 9752 69.8 left
 D 1348 67.7 rt ————— min
 D 2406 69.5 rt —
 D 6680 69.4 left —

11) $\frac{7646}{66}$ (69.5' mean.
 $\frac{104}{99}$
 56

73.2
 $\frac{67.7}{5.5}$

73.2/72	71.6	70.5	69.8	68.7	67.9
			69.8	68.4	67.9
			69.4	—	67.7

Sternum D 2398 * typical
 Furcula D 3056 * typical

M. woodwardi

Ceryle melacorymbus

G. melanolaeus

233 ✓ Length 81.6 ^{greater} depth 23.0 - 26.2% height 12.0 - 13.7% ^{least} depth 20.1 - 22.9%

M. woodwardi

C5187 127.4 29.3 - 22.9% 17.2 - 13.4% 26.0 20.3%
D2238 104.2 24.0 - 23.0 13.8 - 13.2% 21.3 - 20.4%
D1702 115.7 26.2 22.6 14.7 - 12.6 22.8 - 19.7%

✓ 421 *Aquila*
103.4

26.0 - 25.0% 15.4 - 14.8% 22.9 - 21.1%

G. pagilis

D2829 86.8 20.6 - 23.7% 12.1 - 13.9% 18.0 - 20.7%
D 183 92.3 22.6 - 24.4% 13.2 - 14.3% 20.0 - 21.6%
C 6031 82.4 20.8 - 25.2% 11.2 - 13.5% 18.5 - 22.4%
B 9321 86.4 21.6 - 25.0% 11.4 - 13.1% 19.1 - 22.1%
D 154 82.2 19.9 - 24.2% 11.4 - 13.8% 17.9 - 21.7%
D 1991 87.1 21.7 - 23.7% 12.1 - 13.8% 19.0 - 21.8%
E 8419 88.2 22.0 - 24.9% 12.0 - 13.5% 19.5 - 22.7%
E 4592 81.2 20.6 - 25.3% 11.8 - 14.5% 18.2 - 22.4%
J 9406 86.6 21.7 - 25.0% 12.0 - 13.8% 18.9 - 21.8%
E 1091 85.5 20.6 - 24.0% 12.1 - 14.1% 17.8 - 20.8%
E 3166 81.2 19.7 - 24.2% 11.5 - 14.1% 17.7 - 21.9%

21.7% =
average

G. pinelli

C 7325 91.9 - 22.7 - 24.8% 15.0 - 16.3% 20.5 - 22.3%
H 2618 89.1 21.4 - 25.7% 13.8 - 16.6% 19.2 - 23.0%
B 9810 95.8 - 23.8 - 24.8% 15.4 - 16.0% 21.4 - 22.3%
D 4713 74.3 18.1 - 24.3% 12.5 - 16.8% 17.0 - 22.8%
C 5586 80.7 20.0 - 23.5 13.0 - 16.1 18.9 - 23.4%
B 9809 79.2 20.4 - 25.7 12.8 - 16.1 18.6 - 23.4
B 8937 76.4 20.8 - 27.1 12.5 - 16.3 19.0 - 26.1
D 2281 79.5 20.1 - 25.2 13.6 - 17.0 19.0 - 23.8
E 1938 72.4 18.7 - 25.8 11.3 - 15.6 16.6 - 22.9

Neophila

B 5551 106.3 27.8 - 26.7% 14.8 - 14.0 24.6 23.3
C 6483 117.2 26.1 15.5 24.5

M. woodwardi?

#	a	b	c	d	e	f	g	h
D5471			33.5		17.1	20.9	15.0	
C2502			33.8?		18.1?	24.1	16.7	
D4593			32.4✓		17.2	21.5	13.3	
D5253			34.3✓		19.0	22.0	15.0	
C2432			36.0		21.5?	26.0?	18.9?	
C4430			34.1		20.2	23.9	15.1	
C9228			35.9?		22.8	25.7	19.2	
C5289			37.9?		21.4	26.0	17.7	
D1300		72.0		37.0				33.8
C9376		79.9		38.6				38.3
D6711		82.9		40.5				
C4427				42.0				
E6245		83.0		38.7				40.6
E7342		85.6		42.8(?)				38.9
D1954		70.0		36.4				40.5
D1358		79.3		39.5				34.0
C6743	201.7	72.7	34.2	37.1	19.4	20.2	17.6	49.4

Morphnus woodwardi
Humerus

<u>G. melanoleucus</u>					
	Length	Breadth	Depth	Length	Breadth
233 ✓	159.9	32.0-20.0	32.3	120.2	
	159.9	32-20.3	31.7	100.9	
	a	b	7	99.0	
<u>M. woodwardi</u>					
	Length	Breadth	Depth	Length	Breadth
	139.2	28.4	18.0		
	145.6				
	139.3				
	194.0				

C6743	201.2	37.3-18.5	42.0	20.8%	72.8	36.1%	34.0-16.8%
		41.9		112.6%		195.1%	
			46.0	109.8%	82.4	97.8%	

<u>G. pagilis</u>							
D8248	165.3	30.6-18.4%	29.1	17.6%	59.5	35.9%	27.0-16.3%
D2968	159.8	28.6 17.8	27.9	17.4	58.8	36.7	26.5-16.6%
E7954	169.5		31.0	18.2	59.5	35.1	26.3-15.5%
C8735	159.7	29.7 18.5	28.4	17.7	59.0	36.9	26.5-16.5
C4213	171.2	29.7 17.3	30.0	17.5	61.7	36.0	27.0-15.7
F2068	158.0	28.1 17.7	28.9	18.2	57.5	36.3	24.7-15.6
				102.8		204.6	

The curvature of G. pagilis resembles melanoleucus (see table)
 But the bone is not so stout and the ends are narrower (see table)
M. woodwardi — much straighter bone
 Deltoid crest similar in all 3 in shape. Distal of both fossils
 narrower than G. melanoleucus.

Lemur

Material available: 3 complete, 4 distal end.

	^a length	^b proximal end breadth	^c depth	^d distal end	ba	ca	da
D 2487	124.9	26.4	16.7	21.9	21.1	13.3	17.5
C 1111	130.8	27.6	16.3	21.6	21.1	12.4	16.4
C 8833	124.6 _a	25.8 _a	16.7 _a	21.7	20.6	13.4	17.4

Proximal end - differing from others in shape of trochanteric ridge; not evenly rounded as in ~~Adranaka~~ all others, but after rounding to a point about on a line with the center of the head, it turns at an obtuse angle (the same effect could be obtained by cutting off the ridge, of one of the other species, near the prox. end)

Murphius woodwardi
~~*Calymene melanosaurus*~~ Coracoid

S. melanosaurus
 Length

233 61.2
 233 61.4

Length to pro-

Breadth head

Length 21.3-31.8

38.8-63.4% 21.1-34.4
 39.5-64.3% 21.2-34.5

M. woodwardi

D2406	69.5	42.6-61.2%	24.5-36.2%
E7676	69.6	43.3-62.2	24.2-34.8%
E9752	69.5	43.5-62.5	24.4-35.1%
D2423	67.8	43.1-63.5	23.9-35.2%
D4676	71.2	44.8-62.9	24.8-34.8%
D2441	67.5	42.1-62.3	23.1-34.2%
E6875	67.4	43.0-63.9	23.1-34.2%
E3299	72.9	46.5-63.1	26.0-35.6%

J. fragilis

E8395	53.6	33.7-62.8%	18.4-34.3%
C6024	54.7	32.6-59.6%	19.5-35.6%
D4332	57.5	36.4-63.3%	20.2-35.1%
O1167	54.4	33.0-60.6%	19.3-35.4%
E1163	54.4	34.7-62.6%	19.4-35.6%
D2825	55.0	34.4-63.7%	19.6-36.2
E4028	52.1	32.0-61.4%	19.2-36.8
D1217	57.7	38.0-65.8%	19.6-33.9%
E3943	53.7	33.2-61.8%	18.8-35.0%
E3942	53.0	32.8-61.8%	18.5-34.9%

J. grinnelli

E9915	59.6	39.1-65.6%	18.3-32.3%
H4369	57.1	36.6-64.0	17.3-30.2
E600	61.0	39.8-65.2	18.8-30.8
D9040	61.6	40.0-66.5	19.0-30.8
D19	61.0	38.8-63.6	18.9-30.9
H4412	52.6	33.9-64.4	15.8-30.0
E5548	56.3	36.3-64.4	17.4-30.9
E4306	61.1	38.6-63.1	19.7-32.0
H4362	55.0	35.5-64.5	16.4-29.8
H4311	63.6	41.3-63.3	19.7-30.9
471	72.1	44.4-61.5	23.8-33.0

apicula

Length 23.7-32.8

m. woodwardi
Scapula



✓ *q. melanoleucus*
233 17.7 10.0 - 56.4%

m. woodwardi

C 753 21.2 14.1 - 66.5%
 D 4816 19.9 12.5 - 62.8%
 C 4694 19.6 12.1 - 61.6%
 C 6570 20.2 12.9 - 63.8%
 C 4254 19.1 12.0 - 62.7%
 D 4757 18.7 12.1 - 64.7%

q. baylis

E 4862 14.7 9.1 - 61.9%
 E 198 15.8 9.8 - 62.0%
 E 4591 15.3 9.7 - 63.0%
 H 6437 15.0 9.6 - 64.0%
 E 4790 14.9 9.1 - 61.0%
 H 6315 15.1 9.8 - 64.9%
 H 6231 15.1 9.8 - 64.9%
 H 6131 15.5 10.2 - 62.9%
 E 1678 16.1 11.0 - 68.3%
 E 1296 16.0 10.5 - 65.6%
 H 5984 15.0 9.0 - 60.0%
 C 6472 15.6 10.9 - 73.0%
 C 7221 16.0 11.1 - 69.3%
 D 30 14.1 10.1 - 71.6%

Archibuteo

14 14.1 9.2 - 65.1

738 *umbitanga* 10.6 7.6 - 71.6

✓ 471 *quila* 19.9 11.5 - 52.7

Morphnus woodwardi
Seneca

Geranogobius melanoleucus

Length Length to back Length to head Depth Head depth Body depth Breadth across
at ant. condyles

23344	112.0	27.6-24.6%	22.1-19.6%	9.8-8.7%	18.7-16.6%
23341	111.8	28.3	22.6	9.8	18.8

Morphnus woodwardi

D2487	124.6	31.4-25.2%	25.8-20.7%	11.1-8.9%	22.2-17.8%
C1111	130.6	34.4-26.2%	27.2-20.8%	11.1-8.5%	22.0-16.8%

Ger. pagilis

C7511	105.7	26.0-24.7%	21.8-20.6%	9.3-8.7%	18.3-17.3%
E2791	95.2	22.8-23.9%	19.2-20.1%	8.0-8.4%	15.5-16.2%

Aquilar

D1320	135.8	38.4-28.2%	32.5-23.9%	12.8-9.4%	25.9-19.0%
D860	114.3	29.2-25.5%	25.0-21.8%	10.0-9.7%	20.0-17.4%
C6762	112.9	31.5-27.9%	25.5-22.5%	10.1-8.9%	21.2-18.7%
C4817	103.2	28.7-27.8%	23.6-22.8%	9.8-9.4%	19.0-18.3%

~~Morphnus woodwardi~~
 Ibis. rarus morphus

Zeuroaetus melanoleucus

Breadth	Depth	Head	Length	Wing	Tail	Dist
18.5-12.5%	23.2-15.1%	20.3-13.2%	15.3-3.4	69.0-67.4%	10.8-8.3%	13.7-5.9%
18.6-12.1%	23.3-15.1%	20.3-13.2%	15.3-3.4	69.0-67.4%	10.8-8.3%	13.7-5.9%

Morphus

D1068	21.1-12.3%	21.0-14.0%	21.3-12.3%	71.1a
D2236	23.5-12.5%		23.6-12.5%	87.2a
D1974	20.0a	24.9-14.5%	22.0-12.8%	71.0a

Aquila

C3269	24.0-13.2%	27.7-16.0%	22.3-12.8%	173.0a
D1363	20.7-13.7%	23.1-15.5%	19.1-12.8%	148.8

G. gunnelli

C5204		25.1-15.0%	20.3-12.1%	166.5
C5893	17.6-11.6%	21.2-14.0%	16.3-10.7%	151.2

G. pagilis

E1138	15.0-11.3%	15.4-13.9%	15.4-11.6%	131.9
C3731	17.0-11.3%	19.8a	13.2%	17.5 11.6% 150.0

Distinguishing characters of most importance are found in the shape of the distal end. Interocular space broadly curved not as acutely angled even as *Aquila* & not nearly so much so as *G. gunnelli* like *G. mel*. Infratendinal bridge relatively broad & flattened - not bulged anteriorly as in *Aquila* & *gunnelli*. In which characters *Morphus woodwardi* resembles *Zeuroaetus melanoleucus*. Difference lies in size - the smallest woodwardi being larger than the specimen of *melanoleucus* available.

C39302	153.2	20.4-13.3%	23.2-15.1%	20.8-13.5%
D610	141.6	18.8-13.2%	22.5-15.8%	18.0-12.7%

morphum woodwardi

Cervicoid - Ag. Hal. (don't get as large as)

Humerus - Aquila ^(must larger) Neogyro, Sarcogyro, sp.?

Ulna - Aquila ^(must larger) Neogyro

Carpus - Aquila, Hal. Neogyro & vultur (must larger than)

Semur - Aquila, Hal. Gyp. (larger?)

Tibia - larger than all, min. like max. of Ag, Hal.

Tarsus - longer than all

wing. av. longer than Ag, shorter than Hal. some similar to vultur

leg. longer than all - max. of Ag. is 4 min. smaller than min.

Quadr. } Umpag. Jer. Buteo, Uone, falls within Ag, sp. Hal.
ulna } Neog. and Gyp.

Semur } Umpag., Ag (Buteo)
humerus }

Cor. to } det. Umpag. Neog. Sarc. sp.?
wing }

cor. & } U. pag.
leg. }

leg & } U. pag., Ag.?
wing }

U. anth
15, 6, 8 corac to 41.7
from 41.7
Gyr cor. 41.3
233 from 41.2

$$\begin{array}{r}
 14 \quad 1450 \overline{) 10290} \quad 709 \\
 1029 \overline{) 14500} \\
 \underline{1029} \\
 4210
 \end{array}$$

$$\begin{array}{r}
 141 \\
 294 \overline{) 4170} \\
 \underline{294} \\
 12250 \\
 \underline{11780} \\
 4700
 \end{array}$$

$$\begin{array}{r}
 92.3 \\
 2945 \overline{) 27200} \\
 \underline{26505} \\
 6950 \\
 \underline{5890} \\
 10600 \\
 \underline{11980}
 \end{array}$$

$$\begin{array}{r}
 684 \\
 1095 \overline{) 7490} \\
 \underline{6570} \\
 9200 \\
 \underline{8760} \\
 4400 \\
 \underline{4380}
 \end{array}$$

$$\begin{array}{r}
 86.6 \\
 1266 \overline{) 10950} \\
 \underline{10128} \\
 8220 \\
 \underline{7596} \\
 6240 \\
 \underline{6330}
 \end{array}$$

$$\begin{array}{r}
 681.237 \\
 1053 \overline{) 7180} \\
 \underline{6318} \\
 8620 \\
 \underline{8524} \\
 1960
 \end{array}$$

$$\begin{array}{r}
 85 \\
 9896 \overline{) 10530} \\
 \underline{6340} \\
 6180 \\
 \underline{1550}
 \end{array}$$

$$\begin{array}{r}
 191 \\
 2593 \overline{) 39200} \\
 \underline{25935} \\
 13270 \\
 \underline{12965} \\
 3050
 \end{array}$$

$$\begin{array}{r}
 2012 \\
 182.1 \\
 \hline
 213833 \\
 \hline
 1917
 \end{array}$$

$$\begin{array}{r}
 2017 \\
 2175 \\
 193.1 \\
 \hline
 36123 \\
 \hline
 204.1
 \end{array}$$